

Cyclopropanes and Cyclobutanes. On the Decomposition SOV/20-127-1-29/65
of Alkyl-tetrahydropyridazines

ducts mentioned here. It was thus found that it is impossible to obtain cyclobutane-hydrocarbons in two stages (hydrolysis and subsequent decomposition) from adducts of the azo-dicarboxylic ester with alkyl-butadiene or their cyclic analogs. Therefore, the authors applied another method: they synthesized 3-methyl-tetrahydropyridazine, which, however, turned out to be the isomer of the expected compound with one NH-group. An isomerization of the azo form into a hydrazone form apparently takes place here. Experiments with other substances do not lead to the expected result: either the initial substances were not transformed, or a resinification took place. Thus, alkyl- Δ^2 -tetrahydropyridazines cannot be decomposed in the presence of catalysts in the case of heating under the precipitation of N and formation of four-membered cyclic hydrocarbons, in contrast to aryl- Δ^2 -tetrahydropyridazines and pyrazolines. There are 11 references, 8 of which are Soviet.

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Cyclopropanes and Cyclobutanes. On the Decomposition SOV/20-127-1-29/65
of Alkyl-tetrahydropyridazines

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: February 18, 1959, by A. N. Nesmeyanov, Academician

SUBMITTED: February 14, 1959

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SOV/20-127-4-23/60

5(3,4)

AUTHORS:

Shtekher, S. M., Skuratov, S. M., Daukhas, V. K., Levina, R. Ya.

TITLE:

Heats of Combustion of Some Branched Alkanes

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 4, pp 312-314
(USSR)

ABSTRACT:

The authors describe the use of additive schemes for calculating the values of physico-chemical properties of hydrocarbons for which experimental values are missing. In the molecules of the simplest hydrocarbon group, i.e. the alkanes, there are simple C-C and C-H bonds. But as regards their contributions to certain physico-chemical properties, all these bonds cannot be considered equivalent. A scheme built up on such assumptions would be very simple, yet it is known to be incapable of reflecting the differences of the properties between the isomers. Hence, it is unavoidable to establish a more careful classification of these bonds. A number of additive schemes are presently available which - with a certain accuracy - permit the calculation of the heats of combustion (besides other properties) of alkanes (Refs 1-10). The most logical scheme was developed by V. M. Tatevskiy (Ref 5). The authors are criticising the latter

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Heats of Combustion of Some Branched Alkanes

SOV/20-127-4-21/60

in view of its divergences from experimental results. As only one example was available of an alkane with a substitution in a 2,2,4,4-position which showed the divergences mentioned, it was felt to be interesting to find out whether similar phenomena occurred in other alkanes of identical grouping; further, whether the degree of these divergences remained constant, or whether it depends on the structure of the remaining parts of the molecule. Furthermore, it seemed interesting to determine the heats of combustion of such compounds in which the quaternary C-atoms are not separated by one but two methyl group. For these structures the heat of combustion calculated should agree with the experimental values. The schemes (1), (2), and (3) explain the structure of the hydrocarbons whose heat of combustion was determined. A. G. Anikin of the Laboratoriya termodinamiki khimicheskogo fakul'teta (Laboratory for Thermodynamics of the Chemical Department) of the University mentioned below, determined the purity of the substances investigated according to fusion curves. The method of determining the heat of combustion had already been described earlier by the second author et al (Ref 15). Table 1 shows the experimental results obtained. For the sake of comparison, column 2 contains not only

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Heats of Combustion of Some Branched Alkanes

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the values calculated by a scheme developed by V. K. Tatevskiy, but also the difference Δ . Herefrom it may be seen that all hydrocarbons whose molecules contain a group of two quaternary C-atoms, separated by a CH_2 group, show experimental values of the heat of combustion diverging from the values calculated by about 5.1 kcal/mol. This value must be taken into consideration for calculations according to Tatevskiy. If, however, the 2 quaternary C-atoms are separated by 2 CH_2 -groups, the two values are concordant, as was to be expected within the limits of the experimental error. L. V. Fedorchuk and I. Baukh participated in these investigations. There are 1 table and 15 references, 6 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: April 13, 1959, by A. N. Nesmeyanov, Academician

SUBMITTED: April 10, 1959

Card 3/3

Levina, R. Ya

2

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03848
2/051/60/003/03/015/038
E001/W171

AUTHORS: Treshcheva, Ye. O., Panchenko, Yu. N., Yastilyev, M. I.,
Kus'min, M. G., Shabatov, Yu. S., and Levina, R. Ya.
TITLE: Raman Spectra of Hydrocarbons of Various Classes. VI.
The Raman Spectra of Some Arylcyclobutanes.
PERIODICAL: Optika i spektroskopiya, 1960, Vol 6, Nr 3,
pp 371-375 (USSR)

ABSTRACT: The authors investigated the Raman spectra of phenylcyclobutane and of the following arylcyclobutanes: n-tolylcyclobutane, o-anisylcyclobutane, n-tolylcyclobutane, for the sake of comparison the Raman spectra of phenylcyclopropane and n-tolylcyclopropane were also obtained. The apparatus, the experimental technique and the methods of calculation were the same as in earlier work (Ref 6). The results are given in Tables 2-4, and properties (such as the melting point, refractive index, etc) of the four arylcyclobutanes and of phenylcyclobutane are listed in Table 1. The Raman spectra of all four arylcyclobutanes included frequencies characteristic of the appropriate mono- and dialkylbenzenes and alkylcyclobutanes. The intensity of the Raman lines characteristic of the

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four-member cycle and of the benzene ring (lines in the region $\sim 1000-1600 \text{ cm}^{-1}$) is greater in the spectra of arylcyclobutanes than the intensities of the corresponding lines in spectra of alkylcyclobutanes and alkylbenzenes. This behaviour of the intensities was not observed in the case of lines at $\sim 600-800 \text{ cm}^{-1}$, which are characteristic of the benzene ring. There are 4 tables and 7 Soviet references.

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SUBMITTED: July 3, 1959

LEVIHA, R.Ya.; VELICHKO, F.K.

Progress in the chemistry of barbituric acids. Usp.khim. 29
no.8:929-971 Ag '60. (MIRA 13:9)

1. Khimicheskiy fakul'tet Moskovskogo gosudarstvennogo
universiteta im. M.V.Lomonosova.
(Barbituric acid)

5.3400

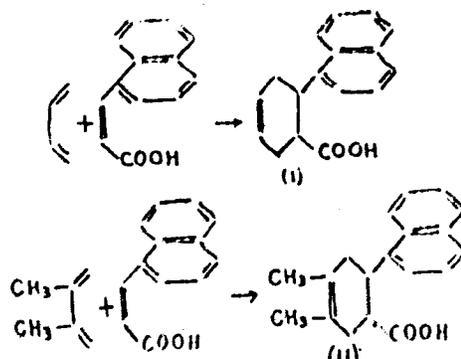
77347
SOV/79-30-1-8/78

AUTHORS: Skvarchenko, V. R., Levina, R. Ya., Pugina, M. I.
TITLE: Aromatic Hydrocarbons. XII. Adducts of Alkadienes-
1,3 With α -Naphthylacrylic Acid
PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 1, pp 46-50
(USSR)
ABSTRACT: Heating of α -naphthylacrylic acid with excess
butadiene in benzene in the presence of hydroquinone,
in an autoclave at 150-160° for 30 hr yields
2-(α -naphthyl)-1,2,3,6-tetrahydrobenzoic acid (I),
(yield 27%), mp 113°. The same reaction with 2,3-
dimethylbuta-1,3-diene at 180-190° for 14 hr yields
4,5-dimethyl-2-(α -naphthyl)-1,2,3,6-tetrahydrobenzoic
acid (II), (yield 53%), mp 156-158°.

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Aromatic Hydrocarbons. XII. Adducts of
Alkadienes-1,3 With α -Naphthylacrylic
Acid

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SOV/79-30-1-8/78



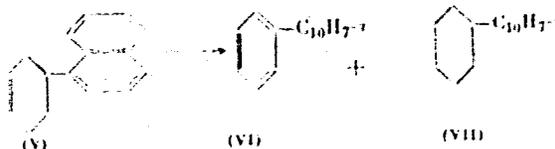
The 2-(α -naphthyl)-1,2,3,6-tetrahydrobenzoic acid in
reaction with P_2O_5 eliminates CO_2 and yields (61%)
 α -(Δ^3 -cyclohexenyl)-naphthalene, mp 72° ; i.e.,
2-(α -naphthyl)-1,2,3,6-tetrahydrobenzoic acid behaves
quite differently from the analogous structure, 2-
phenyl-1,2,3,6-tetrahydrobenzoic acid (adduct of

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Alkadienes-1,3 With α -Naphthylacrylic
Acid

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butadiene with cinnamic acid) which in reaction with P_2O_5 eliminates water and yields fluorene. The obtained α -(Δ^3 -cyclohexenyl)-naphthalene was identified by conversion into a mixture of α -phenylnaphthalene (VI) and α -cyclohexylnaphthalene (VII) (by heating with 3c).



The authors wish to thank L. A. Kazitsina for the absorption spectra. There is 1 table; 1 figure; and 5 references, 2 Soviet, 2 U.K., 1 German. The U.K. references are: Cook, J., Dansi, A., Hewett, C., et al., J. Chem. Soc., 1935, 1319; Cook, J., Hewett, C.,

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Aromatic Hydrocarbons. XII. Adducts of
Alkadienes-1,3 With α -Naphthylacrylic
Acid

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307/79-39-1-8/18

Lawrence, C., J. Chem. Soc., 1936, 71.

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy
universitet)

SUBMITTED: December 19, 1958

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77348
SOV/79-30-1-9/78

AUTHORS: Skvarchenko, V. R., Chervoneva, L. A., Levina, R. Ya.

TITLE: Aromatic Hydrocarbons. XIII. Synthesis of Fluorenes
From Adducts of 1,2-Indenedicarboxylic Anhydride

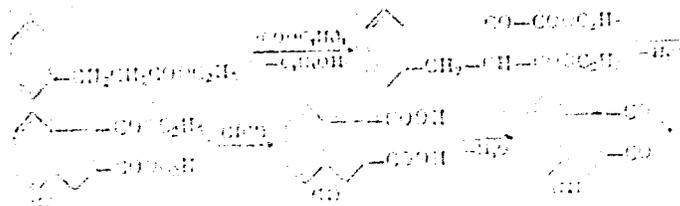
PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 1, pp 50-54
(USSR)

ABSTRACT: 1,2-Indenedicarboxylic anhydride was used in this work for the first time as a dienophile. Ethyl ester of hydrocinnamic acid was the starting material from which 1,2-indenedicarboxylic acid (II, yield 91%, mp 215-217^o) and its anhydride (III, yield 43%, mp 184-185^o) were prepared through the formation of an intermediate product, diethyl ester of 1,2-indenedicarboxylic acid (I), mp 76-77^o.

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Aromatic Hydrocarbons. XIII. Synthesis
of Fluorenes From Adducts of 1,3-
-Indenedicarboxylic Anhydride

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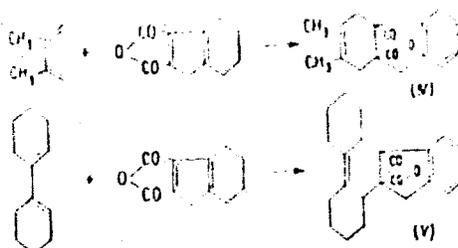


The reaction of compound III with 1,3-dimethylbuta-1,3-diene (heating at 120°C in autoclave for 30 hr) and with 1,1-dicyclohexenyl (boiling in toluene for 40 hr) yields (64%) compound IV (mp 118-120°C) and compound V (yield 87.2%, mp 115-116°C), respectively.

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Aromatic Hydrocarbons. XIII. Synthesis
of Fluorenes From Adducts of 1,2-
-Indenedicarboxylic Anhydride

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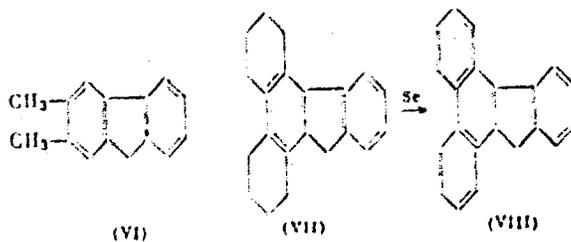


Both anhydrides (IV and V) were not described in literature. The adducts IV and V on heating with P_2O_5 eliminate carbon monoxide and water and yield (75%) compound VI, mp $123-124^\circ$, compound VII (yield 76%), mp $128-128.5^\circ$, and compound VIII (yield 41%), mp $158-159^\circ$.

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Aromatic Hydrocarbons. XIII. Synthesis
of Fluorenes From Adducts of 1,2-
-Indenedicarboxylic Anhydride

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SOV/19-30-1-9/78



There are 6 references, 4 Soviet, 1 German, 1 French.

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy universitet)

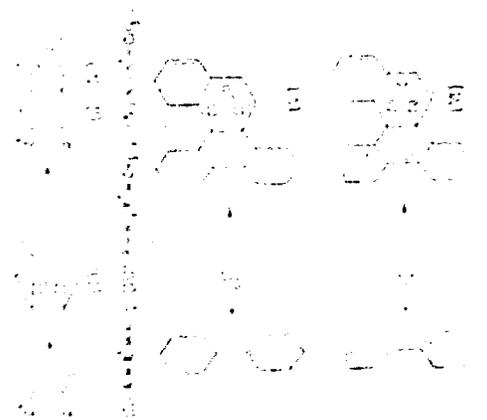
SUBMITTED: January 22, 1959

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Aromatic Hydrocarbons. XIV. The Reaction of Phosphorus Pentoxide With Adducts of Dienes and 3,4-Dihydronaphthalene-1,4-dicarboxylic Acid

77389
09/79-00-1-10/78

with bicyclic dienes were also prepared: compounds V (yield 80%), mp 150-151° (not described in literature), and VI (yield 80%), mp 164-165° (not described in literature).



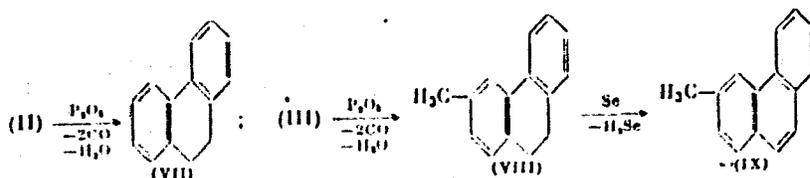
Card 2/5

Aromatic Hydrocarbons. XIV. The Reaction of Phosphorus Pentoxide With Adducts of Dienes and 3,4-Dihydronaphthalene-1,2-dicarboxylic Acid

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The reaction of P_2O_5 with adduct II at gradually rising temperature, from 200 to 300°, yields compound VII (yield 72%), mp 33-34.5°. Heating of P_2O_5 with compound III at 200-320° yields compound VIII (yield 69%), bp 167-168° (9 mm), n_D^{20} 1.6309.

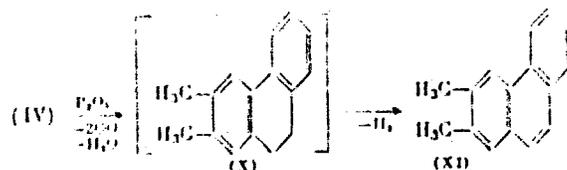


Heating of P_2O_5 with compound IV at 250-350° for 6 hr yielded compound XI (yield 39%), mp 79-80°, instead of expected compound X.

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Aromatic Hydrocarbons. XIV. The Reaction of Phosphorus Pentoxide With Adducts of Dienes and 3,4-Dihydronaphthalene-1,2-dicarboxylic Acid

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The adducts V and VI are stable toward P₂O₅; heating at 300-400° for 10 hr resulted only in formation of naphthalene-1,2-dicarboxylic anhydride (XII) and naphthalene instead of the expected phenanthrenes. This is explained by the decomposition of adducts into starting diene and dienophile at high temperature. The dienophile, 3,4-dihydronaphthalen-1,2-dicarboxylic anhydride, is converted into a mixture of naphthalene-1,2-dicarboxylic anhydride (XII) and 1,2,3,4-tetrahydronaphthalene-1,2-dicarboxylic anhydride (XIII). The

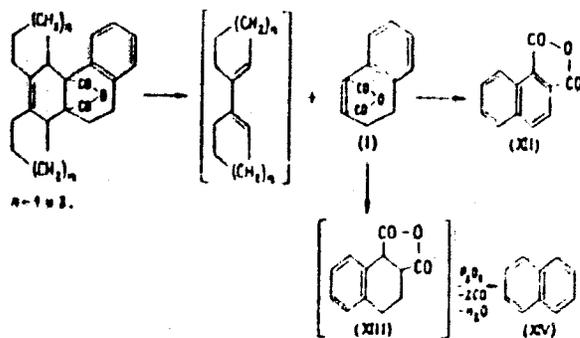
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Aromatic Hydrocarbons. XIV. The Reaction of Phosphorus Pentoxide With Adducts of Dienes and 3,4-Dihydronaphthalene-1,2-dicarboxylic Acid

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latter, under the action of P_2O_5 , eliminates carbon monoxide and water and becomes converted into naphthalene (the second reaction product).



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Aromatic Hydrocarbons. XIV. The Reaction
of Phosphorus Pentoxide With Adducts of
Dienes and 3,4-Dihydronaphthalene-1,2-
dicarboxylic Acid

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There are 16 references, 6 Soviet, 4 U.S., 4 U.K., 2
German. The 5 most recent U.S. and U.K. references are:
Fieser, L. F., Herschberg, E. B., J. Am. Chem. Soc.,
57, 2192 (1935); Fieser, L. F., Herschberg, E. B., J.
Am. Chem. Soc., 57, 1508 (1935); Askew, F. A., J. Chem.
Soc., 1935, 512; Francis, F., Collins, F. J. E., J.
Chem. Soc., 1936, 137; Fieser, L. F., Herschberg, E. B.,
J. Am. Chem. Soc.

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy
universitet)

SUBMITTED: January 22, 1959

Card 6/6

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77852
SOV/79-30-2-3/78

AUTHORS: Levina, R. Ya., Kostin, V. N., Ustnyuk, T. K.

TITLE: Reaction of Cyclopropanes With Mercuric Salts. XI. Cleavage of the Three-Membered Ring in (0, 1, N)-Bicycloalkanes (N = 2, 3, and 4)

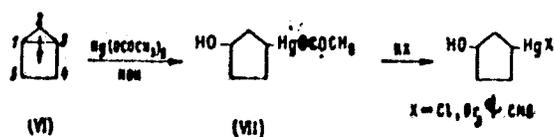
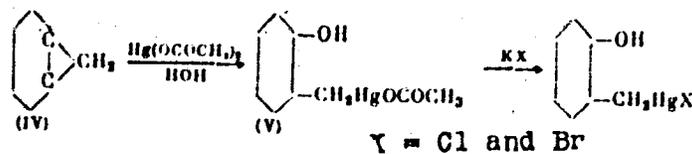
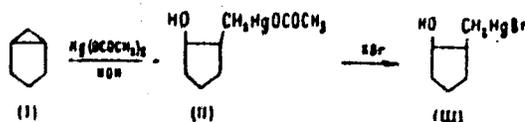
PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 359-363 (USSR)

ABSTRACT: The action of mercuric acetate on (0,1,3)-bicyclohexane (I, norbornane), (0,1,4)-bicycloheptane (IV, norcarane), and (0,1,2)-bicyclopentane (VI), as well as other (0,1,N)-bicycloalkanes, can be used to identify these substances by the final reaction products -mercurated alcohols and their derivatives. The reactions for compounds I, IV, and VI are represented below:

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Reaction of Cyclopropanes With Mercuric Salts.
 XI

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Card 2/5

Reaction of Cyclopropanes With Mercuric Salts.

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XI

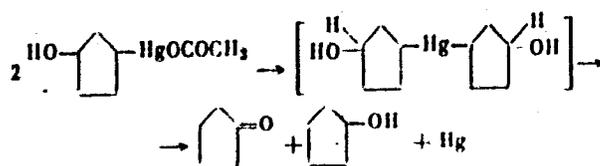
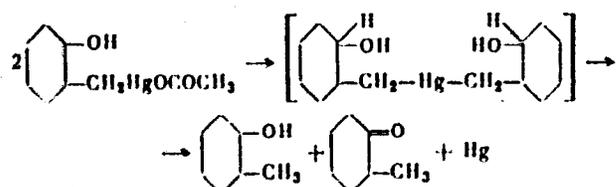
SOV/79-30-2-3/78

The reactions were performed by mixing the respective hydrocarbon with mercuric acetate (at room temperature for compounds I and IV and at 0° for VI) and by subsequent addition of potassium bromide to the product (the mercurated alcohols II, V, and VII) to obtain the halomercuri-derivatives. The cleavage of the three-membered ring in (0,1,2)-bicyclopentane takes place at the carbon-carbon "bridge" bond, while in the case of (0,1,3)-bicyclohexane and (0,1,4)-bicycloheptane the bond between the least and the most substituted carbon atoms is broken, leading to the formation of mercurated alcohols of the cycloheptane and cyclohexane series, respectively. The site of the ring cleavage was determined by results of thermal decomposition of mercurated alcohols. The reactions and final products for the pyrolysis of V and VII are shown below:

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Reaction of Cyclopropanes With Mercuric Salts.
 XI

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The following derivatives of the mercurated alcohols were isolated and analyzed: 2-hydroxy-1-bromo-

Reaction of Cyclopropanes With Mercuric Salts.
XI

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mercurimethylcyclopentane (III), 151-152°; 2-hydroxy-1-acetoxymercurimethylcyclohexane (V), mp 129-130°; 3-hydroxy-1-chloromercuricyclopentane, mp 97-98°; 3-hydroxy-1-bromomercuricyclopentane, mp 129-130°; 3-hydroxy-1-thiocyanomercuricyclopentane, mp 110-111°; 2-hydroxy-1-chloromercurimethylcyclohexane; mp 122-123°; 2-hydroxy-1-bromomercurimethylcyclohexane, mp 114-115°. There are 13 references, 4 Soviet, 5 German, 1 Belgian, 1 Swiss, 2 U.S. The U.S. references are: W. E. Doering, A. K. Hoffman, J. Am. Chem. Soc., 76, 6162 (1954); C. R. Noller, R. Adams, J. Am. Chem. Soc., 48, 1084 (1926).

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy universitet)

SUBMITTED: March 2, 1959

Card 5/5

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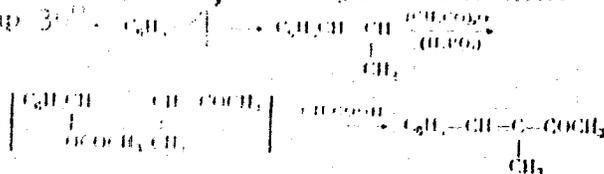
SOV/1-3-27/69

AUTHORS: Ievina, R. Ya., Kozlov, V. M., Gombitskiy, P. A.,
~~Treshchinskii, V. G.~~

TITLE: Cyclopropanes and Cyclobutanes. X. Acylation of
Cyclopropanes

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 3,
pp 868-875 (USSR)

ABSTRACT: The behavior of the cyclopropane ring in phenyl-
cyclopropane, an acylation with acetic anhydride
in the presence of phosphoric acid, was studied.
The reaction proceeds through isomerization of
cyclopropanes into alkenes, which on further acylation
yield an unsaturated ketone, 2-benzylidenacetone
(yield 36.5%), mp 34°. $C_9H_{10}O$ $\xrightarrow{CH_3CO}_2O$ C_9H_8O
 $\xrightarrow{CH_3CO}_2O$ $C_{11}H_{12}O$

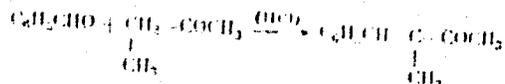


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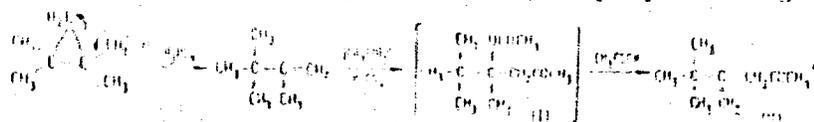
Reaction of cyclopropane

30V/11-30-3-27/69

All other cyclopropanes behave similarly. The structure of the prepared 2-benzylidenbutanone was confirmed by parallel synthesis.



Isomerization of phenylcyclopropane and 1,1,2,2-tetramethylcyclopropane in acetic anhydride in the presence of phosphoric acid yields propenylbenzene and 2,2,3-trimethylbutene, bp 162° (745 mm), n_D²⁰ 1.4530, respectively. This constitutes a heterolytic cleavage of the cyclopropane ring.

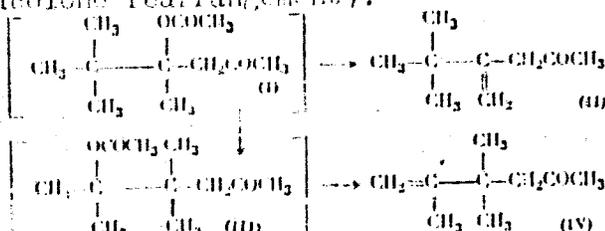


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Cyclopropane and Cyclobutane
 Acylation of Cyclopropane

1957
 SOV/12-30-3-27/69

Acylation of 1,1,2,2-tetramethylcyclopropane or 2,2,3-trimethylbutane yields a β, γ -unsaturated ketone, 2,2-dimethyl-3-methylenehexan-5-one, which is formed from the intermediate acetoxyketone by elimination of an acetic acid molecule (without retro-pinacolone rearrangement).



The structure of unsaturated ketones formed on acylation of phenylcyclopropane and 1,1,2,2-tetramethylcyclopropane was confirmed by absorption spectra of their 2,4-dinitrophenylhydrazones, and by comparison of their properties with those of authentic samples. There are 12 references, 6

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Cyclopropanes and Cyclobutanes. X.
Acylation of Cyclopropanes

78273

SOV/79-30-3-27/69

Soviet, 2 U.S., 2 U.K., 1 French, 1 German. The U.S. and U.K. references are: Hart, H., Curtis, O. E., Jr., J. Am. Chem. Soc., 79, 931 (1957); Sakh, Dev, Chem. and Ind., 1071 (1954); Hartough, H., Kosak, A., J. Am. Chem. Soc., 69, 3093 (1947); Perkin, W. H., J. Chem. Soc., 69, 1028 (1896).

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy universitet)

SUBMITTED: March 31, 1959

Card 4/4

S/079/60/030/06/01/009
B002/B016

5.3300B

AUTHORS:

Levina, R. Ya., Daukshas, V. K.

TITLE:

Hydrocarbon Synthesis. 74. Alkyl Cyclohexanes With Two Quaternary Carbon Atoms in the Side Chain

PERIODICAL:

Zhurnal obshchey khimii, 1960, Vol. 30, No. 6, pp. 1758-1761

TEXT: To determine the optimum hydrocarbon structures for the components of motor fuels, some alkyl cyclohexanes were synthesized with two quaternary carbon atoms in their side chain. The authors proved in a previous paper (Ref. 6) that density and refractive index of these compounds decrease with growing distance between the two quaternary carbon atoms. Two groups of compounds were prepared: 1) Direct bonding of one of the quaternary carbon atoms to the cyclohexyl radical; 2) there is a methylene group between the cyclohexyl radical and the quaternary carbon atom. Tertiary allyl chlorides (I) were used as initial substances (the hydrochlorides of 2,4-dimethyl-pentadiene-1,3 and of 3,5-dimethyl-heptadiene-2,4). They were subjected two times to a Grignard-Wuertz reaction, once (ad 1) first under the influence of cyclohexyl-magnesium

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Hydrocarbon Synthesis. 74. Alkyl Cyclohexanes
With Two Quaternary Carbon Atoms in the Side
Chain

S/079/60/030/06/01/009
B002/B016

chloride (formation of alkenyl cyclohexanes II). These were hydrochlorinated (to give III) and then treated with isopropyl magnesium bromide. In this way 2,3,3,5-tetramethyl-5-cyclohexyl-hexane or 2,3,5-trimethyl-3-ethyl-5-cyclohexyl-heptane (IV) were obtained. (Ad 2); 2,3,3,5,5-pentamethyl-6-phenyl hexane and 2,3,3,5,5-pentamethyl-6-cyclohexyl-hexane were obtained by hydrochlorination of (I) to (V); in this case (V) was first treated with isopropyl magnesium bromide to form (VI), and then with benzyl magnesium chloride. The procedure of the synthesis is described in detail in the experimental part. Reaction schemes are given. Constants, analytical data, and yields of all compounds synthesized are summarized in a table. None of the compounds is described in publications. The compounds with a quaternary carbon atom directly bound to the cyclohexyl radical were found to have a higher density than those with an inserted methylene group. The molecular refraction was determined experimentally, and the values were compared with the theoretically calculated ones. The values calculated according to V. M. Tatevskiy (Ref. 9), who considered all types of bondings occurring in the compound, were found to conform best with the experimental values. The authors

Card 2/3

Hydrocarbon Synthesis. 74. Alkyl Cyclohexanes
With Two Quaternary Carbon Atoms in the Side
Chain.

3173
S/079/60/030/06/01/009
B002/B016

thank Ye. G. Treshchova who analyzed the Raman spectrum of the compounds. The spectra show the characteristic lines of quaternary carbon atoms. The lines of unsaturated hydrocarbons are missing. There are 1 table and 10 Soviet references. ✓

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: June 24, 1959

Card 3/3

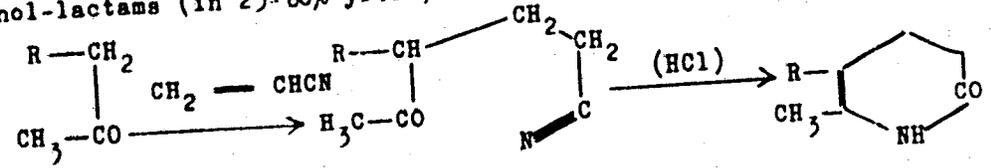
S/079/60/030/006/012/033/XX
B001/B055

AUTHORS: Shusherina, N. P., Golovin, A. V., and Levina, R. Ya. ✓

TITLE: δ-Lactones and δ-Lactams. XXI. Dibromides of δ-Enol-lactams
(5,6-Dibromo-5,6-dialkyl-piperidones-2)

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 6, pp. 1762-1769

TEXT: Basing on their previous investigations (Refs. 1-3), the authors of the present work studied the reactions of the dibromides of δ-enol-lactams formed by the cyclization of δ-keto-acid nitriles by means of hydrogen chloride (Ref. 4). The initial substances used in this reaction were methyl ethyl, methyl butyl, methyl isobutyl, and methyl amyl ketones. The reaction was found to be a convenient method of preparing 5,6-dialkyl-δ-enol-lactams (in 25-60% yield) according to the reaction scheme ✓



Card 1/3

δ -Lactones and δ -Lactams. XXI. Dibromides
of δ -Enol-lactams (5,6-Dibromo-5,6-dialkyl-
piperidones-2)

S/079/60/030/006/012/033/XX
B001/B055

where R = CH₃, C₃H₇, 1-C₃H₇ and C₄H₉ in substances (I - IV), respectively.

The structure of compounds (I - IV) is demonstrated by the good agreement between their constants and the constants of δ -enol-lactams prepared previously in a different manner, i.e., from δ -enol-lactones (Ref. 5).

The δ -enol-lactams readily add bromine without heating, forming 5,6-dibromo-piperidones-2 (scheme 2) which split off HBr when standing. It was also possible to split off two hydrogen bromide molecules successively from 5,6-dibromo-piperidones-2. On treatment with water at room temperature, 5,6-dibromo-piperidones-2 split off one molecule of HBr, forming

5-bromo- Δ^6 -dihydro-pyridones-2 in 65-80% yields (scheme 3). Reaction (A) is less probable. The structure of the synthesized monobromides was verified by hydrolysis and subsequent distillation; the 5-bromo-5,6-dialkyl-

Δ^6 -dihydro-pyridones-2 rearrange to form hydrobromides of the corresponding pyridones-2 in 40-50% yields (scheme 6). The structure of the hydrobromides was verified by preparing one of them (IX) by treating the corresponding pyridone with gaseous HBr (scheme 7). Treatment with diethyl-aniline or water converts 5-bromo-5,6-dialkyl- Δ^6 -dihydro-pyridones-2 to

Card 2/3

δ -Lactones and δ -Lactams. XXI. Dibromides
of δ -Enol-lactams (5,6-Dibromo-5,6-dialkyl-
piperidones-2)

S/079/60/030/006/012/033/XX
B001/B055

the 5,6-dialkyl-pyridones (XII - XV) in yields of 10-45%. Diethyl-aniline
also converts 5,6-dibromo-5,6-dialkyl-piperidones-2 to the latter compounds
in 20-23% yields. There are 4 tables and 9 references: 6 Soviet, 2 US,
and 1 German.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State
University)

SUBMITTED: June 26, 1959

Card 3/3

S/079/60/030/007/022/039/XX
B001/B066

AUTHORS:

Skvarchenko, V. R., Lin Veyen-Lyan', and Levina, R. Ya.

TITLE:

Aromatic Hydrocarbons. XV. Pinacols in Diene Synthesis

PERIODICAL:

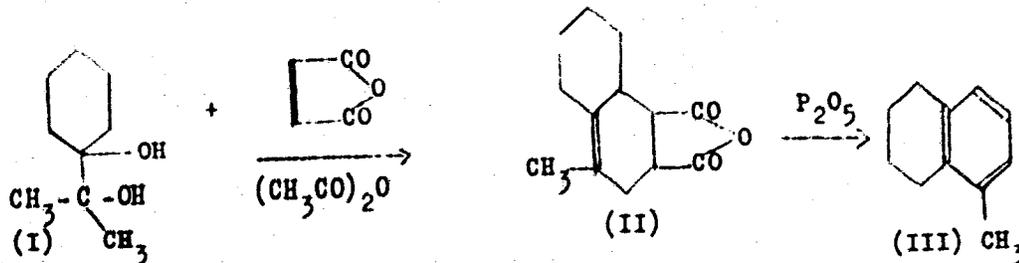
Zhurnal obshchey khimii, 1960, Vol. 30, No. 7, pp. 2141-2145

TEXT: On the basis of previous papers by V. R. Skvarchenko and co-workers (Refs. 1-3), the present paper describes the synthesis of 5-methyl-tetralin, 5,8-dimethyl-tetralin, and 4-methyl-indan by reaction of phosphorus pentoxide with the corresponding anhydrides of Δ^4 -cycloalkenyl-dicarboxylic-1,2 acids. Contrary to the synthesis described previously, the anhydrides used were obtained from simpler components of the diene synthesis, from pinacols of cyclic ketones, maleic and methyl-maleic anhydrides (in excess). 5-methyl-tetralin (III) was obtained by treating the anhydride of acid (II) with P_2O_5 (50% yield). The anhydride was obtained by shortly heating pinacol (I) (obtained from acetone and cyclohexanone) in acetic anhydride with maleic anhydride in excess (54%):

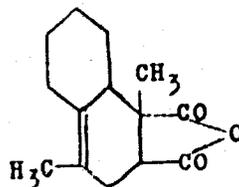
Card 1/3

Aromatic Hydrocarbons. XV. Pinacols in Diene Synthesis

S/079/60/030/007/022/039/XX
B001/B066



The direct synthesis of compound (II) from isopropenyl-cyclohexene-1 and maleic anhydride in xylene gave only a yield of 2%. Dimethyl-tetralin (VI) was obtained by heating anhydride (V)



with P₂O₅ (62%).

Card 2/3

Aromatic Hydrocarbons. XV. Pinacols in
Diene Synthesis

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B001/B066

Compound (V), in turn, resulted from pinacol (I) and methyl-maleic anhydride when heated in acetic anhydride (47%). 5,8-Dimethyl naphthalene (VI) was converted to 1,4-dimethyl naphthalene (VII) when heated with sulfur. Apparently compounds (VI) and (VII) did not contain any impurities of isomers. 4-methyl indan resulted (48%) from P_2O_5 and anhydride (IX) which is a product of the reaction of maleic anhydride with pinacol (VIII) in acetone and cyclopentanone solutions (35%). When using the pinacols as diene components in the reaction with maleic and methyl-maleic anhydride (in acetic anhydride), the formation of unstable, readily polymerizing diene hydrocarbons may be avoided. There are 12 references: 4 Soviet, 4 US, 2 British, and 2 German.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: July 10, 1959

Card 3/3

S/079/60/030/007/006/020
B001/B063

AUTHORS: Levina, R. Ya., Daukshas, V. K., Surikova, T. P.

TITLE: Synthesis of Hydrocarbons. LXXV. A New Synthesis of
1,1,3,3-Tetraalkyl Cyclohexanes ¶

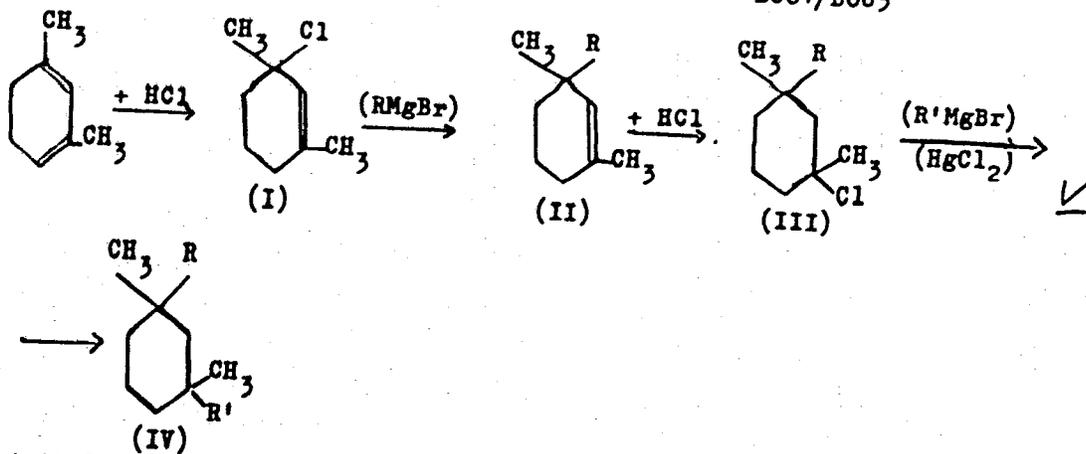
PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 7, pp. 2145-2148 ✓

TEXT: The first cyclohexane hydrocarbons having two quaternary carbon atoms in their nuclei were described by G. Chiurdoglu and A. Maquestiau (Ref. 1), but their number has remained low since general and sufficiently simple methods of synthesis are lacking. As such cyclohexanes are contained in the fractions of petroleum distillation (Ref. 2), it is necessary for their identification to use cyclohexanes of a certain structure. It was the purpose of the present paper to develop a general method of synthesizing 1,1,3,3-tetraalkyl cyclohexanes, i.e., cyclohexanes having two quaternary carbon atoms in their nuclei, which are separated by the methylene group. These hydrocarbons were synthesized according to the following scheme: ¶

Card 1/3

Synthesis of Hydrocarbons. LXXV. A New Synthesis of 1,1,3,3-Tetraalkyl Cyclohexanes

S/079/60/030/007/006/020
B001/B063



Trialkyl cyclohexenes (II) (described by the first-mentioned author, Ref. 3) were hydrochlorinated, and the resulting saturated chlorides (III) were converted into the tetraalkyl cyclohexanes (IV) in the presence of

Card 2/3

Synthesis of Hydrocarbons. LXXV. A New Synthesis of 1,1,3,3-Tetraalkyl Cyclohexanes S/079/60/030/007/006/020
B001/B063

HgCl₂, by using the Grignard-Würtz reaction (yield of 28-60% as referred to the trialkyl cyclohexene (II) used). The radical of alkyl magnesium bromide was substituted for the chlorine atom, and HCl was split off under the formation of trialkyl cyclohexenes (II) (yield of 75%) which could be easily separated from the final products by way of distillation. The trialkyl cyclohexenes were again caused to react, and the following compounds were synthesized in this way: 1,1,3-trimethyl-3-ethyl cyclohexane, 1,1,3-trimethyl-3-propyl cyclohexane, 1,1,3-trimethyl-3-butyl cyclohexane, and 1,3-dimethyl-1,3-diethyl cyclohexane (Table). There are 1 table and 3 references: 2 Soviet and 1 Belgian. ✓

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: July 10, 1959

Card 3/3

LEVINA, R.Ya.; SHAYAROV, Yu.S.; KUZ'MIN, M.G.

N-Carboethoxydihydropyridazines and their derivatives. Zhur.ob.
khim. 30 no.8:2469-2473 Ag '60. (MIRA 13:8)

1. Moskovskiy gosudarstvennyy universitet.
(Pyridazine)

SHABAROV, Yu.S.; KUZ'MIN, M.G.; LEVINA, R.Ya.

Tetrahydropyridazines and hexahydropyridazines. Zhur.ob.khim. 30
no.8:2473-2480 Ag '60. (MIRA 13:8)

1. Moskovskiy gosudarstvennyy universitet.
(Pyridazine)

SHUSHERINA, N.P.; DMITRIYEVA, N.D.; KOZLOVA, T.F.; LEVINA, R.Ya.

δ -Lactones and δ -lactams. Part 22: Nitration of 5,6-disubstituted
2-ones. Zhur. ob. khim. 30 no.9:2829-2832 S '60. (MIRA 13:9)

1. Moskovskiy gosudarstvennyy universitet.
(Pyranone)

84870

S/079/60/030/010/006/030

B001/B075

11.1210

AUTHORS:

Levina, R. Ya. and Daukshas, V. K.

TITLE:

Synthesis of Hydrocarbons. LXXVI. Cyclohexanes¹ With Three Quaternary Carbon Atoms in the Ring

PERIODICAL:

Zhurnal obshchey khimii, 1960, Vol. 30, No. 10,
pp. 3207-3210

TEXT: The authors have previously described the synthesis of cyclohexanes with one and two quaternary carbon atoms by proceeding from 1,3-dimethyl cyclohexadiene-1,3. The present paper gives a description of a general method of synthesizing the cyclohexane derivatives, hitherto unknown, that have three quaternary carbon atoms in the ring, which are separated by methyl groups, viz., 1,3,3,5,5-pentamethyl-1-alkyl cyclohexanes. The authors proceeded from a cyclohexadiene hydrocarbon that has already one quaternary carbon atom, i.e., from 1,1,3,5-tetramethyl cyclohexadiene-2,4 (I). This synthesis is given by a formula. Compound (II), the hydrochloride of (I), is a ternary unsaturated chloride of the allyl type, which does not produce an isomeric chloride during allyl regrouping. It was reacted

Card 1/2

84871

S/079/60/030/010/007/030
B001/B075

11.12.10

AUTHORS:

Shabarov, Yu. S., Levina, R. Ya., Kuz'min, M. G.,
Vasil'yev, N. I., and Damir, N. A.

TITLE:

Cyclopropanes and Cyclobutanes / XI. Methylphenyl
Cyclobutanes

PERIODICAL:

Zhurnal obshchey khimii, 1960, Vol. 30, No. 10,
pp. 3210-3214

TEXT: In their investigation (Refs. 1-4) on the catalytic splitting of alkyl- and aryl tetrahydropyridazines, the authors could obtain only aryl cyclobutanes, but no alkyl cyclobutanes (Ref. 4). In the present work, the catalytic splitting of alkyl aryl tetrahydropyridazines has been attempted for the purpose of synthesizing alkyl aryl cyclobutanes. The authors proceeded from 5-methyl- and 6-methyl-3-phenyl tetrahydropyridazines which were obtained by hydrolyzing the adducts of the corresponding dienes with azodicarboxylic acid ester. These initial products proved to be unstable compounds, and were identified from their addition products to phenyl isothiocyanate. The presence of an NH group in the initial products was also proved (Ref. 3). The catalytic splitting of the Card 1/2

84871

Cyclopropanes and Cyclobutanes. XI. Methylphenyl
Cyclobutanes S/079/60/030/010/007/030
B001/B075

two initial pyridazines⁷ was carried out in the same way as that of aryl tetrahydropyridazines described in Refs. 1-3. Thus, a gas composed of nitrogen and propylene evolved under the formation of a mixture of the corresponding methyl-phenyl cyclobutane and styrene. Consequently, the decomposition of alkyl aryl tetrahydropyridazines is similar to that of aryl- Δ^2 -tetrahydropyridazines: While nitrogen is produced, the biradical is formed as an intermediate which yields cyclobutane and two ethylene hydrocarbons. The molar ratio between the yield of methyl-phenyl cyclobutane and styrene proved to depend on the position of the methyl group in the tetrahydropyridazine ring. Vacuum distillation (cf. experimental part) of the resulting cyclobutane showed that 1-methyl-2-phenyl cyclobutane consisted of a mixture of cis- and trans-isomers (1:1), whereas 1-methyl-3-phenyl cyclobutane contained 80% of the trans-form. Raman spectra showed the absence of olefins in the separated hydrocarbons (Ref. 5). The characteristic frequencies 912-950 cm^{-1} confirmed the presence of a four-membered ring. There are 1 table and 12 references: 9 Soviet, 2 German, and 1 French.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet
(Moscow State University)

SUBMITTED: December 7, 1959

Card 2/2

84886

5 3300

only 2209, 1236

S/079/60/030/010/029/030
B001/B066

AUTHORS: Levina, R. Ya., Kostin, V. N., Gembitskiy, P. A., and Shostakovskiy, S. M.

TITLE: New Hydrocarbons of the Cyclopropane¹¹ Series

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 10,
pp. 3502 - 3503

TEXT: The authors continued their investigations on cyclopropanes (Refs. 1 and 2) by synthesizing some new compounds of this series. By partial reduction of phenyl- and p-tolyl cyclopropane with sodium (in liquid ammonia) and methyl alcohol, 1-cyclopropyl-cyclohexadiene-1,4 and 1-methyl-4-cyclopropyl-cyclohexadiene-1,4 were synthesized. The subsequent catalytic hydrogenation of the double bonds in 1-cyclopropyl-cyclohexadiene-1,4 (on a copper-chromium catalyst at a pressure of 100 atm) at 95° and 125° gave cyclopropyl-cyclohexene-1 and, later, cyclopropyl-cyclohexane; the latter was also obtained by methylenation (Ref.3) of vinyl cyclohexane. p-cyclopropyl styrene and p-cyclopropyl-isopropenyl benzene were, accordingly, synthesized by dehydration of

Card 1/2

84886

New Hydrocarbons of the Cyclopropane Series

S/079/60/030/010/029/030
B001/B066

methyl- and dimethyl-p-cyclopropyl-phenyl carbinols (both carbinols were obtained from p-cyclopropyl-acetophenone). p-dicyclopropyl benzene resulted both from p-cyclopropyl acetophenone, according to the stepwise reactions of Mannich and Kizhner (Ref.4), and from p-cyclopropyl styrene by methylenation (Ref.3). The constants of the resultant hydrocarbons are tabulated. There are 1 table and 4 references: 3 Soviet and 1 US.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: June 13, 1960

Card 2/2

S/079/60/030/010/030/030
B001/B066

AUTHORS: Skvarchenko, V. R., Tsybikova, D. Ts., and Levina, R. Ya.

TITLE: A New Method of Synthesizing p-Terphenyls¹

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 10,
pp. 3504 - 3505

TEXT: When studying the reaction of p-phenyl cinnamic acid with different diene hydrocarbons, the authors found conditions under which the resultant addition products (2-p-diphenyl-1,2,3,6-tetrahydro benzoic acids) decarboxylate and dehydrogenate immediately to give p-terphenyls. The conditions were the following: heating of the benzene solution of p-phenyl cinnamic acid at 300° in a steel autoclave for 16-18 hours with a twofold excess of alkalies and in the presence of 0.1 g picric acid and 0.1 g hydroquinone: ✓

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929610013-0"

Card 1/2

... (IV). There is 1 table.

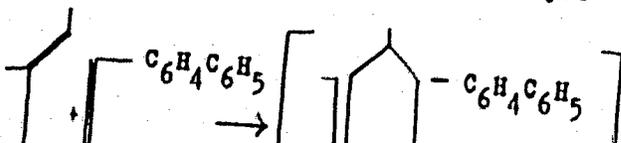
ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: July 27, 1960

Card 2/2

A New Method of Synthesizing p-Terphenyls

S/079/60/030/010/030/030
B001/B066



SKVARCHENKO, V.R.; LEVINA, R.Ya.; BILYAVSKAYA, Ye.M.

Aromatic hydrocarbons, Part 16: Aromatization of halogen-substituted tetrahydrophthalic acids (adducts of the diene synthesis) under the action of phosphorus pentoxide. Zhur. ob. khim. 30 no.11: 3535-3541 N'60. (MIRA 13:11)
(Cyclohexenedicarboxylic acid) (Aromatization)
(Phosphorus oxide)

87625

S/079/60/030/012/005/027
B001/B064

5 5300

AUTHORS: Shabarov, Yu. S., Levina, R. Ya., Potapov, V. K.,
Osipov, A. M., and Treshchova, Ye. G.

TITLE: Cyclopropanes and Cyclobutanes. XIV. Phenyl Cyclopropanes
With Substituents in the Para Position of the Benzene Cycle

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 12,
pp. 3874-3876

TEXT: In previous papers (Refs. 1-4) the authors reported on the effect
of the nature of aryl radicals upon the reactivity of the three-membered
cycle linked with it. Thus, it was found that polymerizability strongly
increases under the action of $AlCl_3$ in the following order: phenyl cyclo-
propane < p-tolyl cyclopropane < p-anisyl cyclopropane (Ref. 2). The
three-membered cycle which opens readily in phenyl cyclopropane (Ref. 3),
p-tolyl cyclopropane, p-anisyl cyclopropane (Ref. 4) under the action of
mercury salts, is stable in p-nitrophenyl cyclopropane (Ref. 1). To render
these observations more complete, it is necessary to develop a method of
synthesizing phenyl cyclopropane with various substituents in the benzene
cycle. p-aminophenyl cyclopropane which could be easily obtained by
Card 1/3

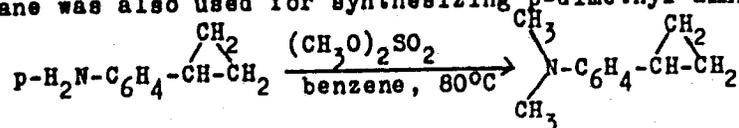
87525

Cyclopropanes and Cyclobutanes. XIV. Phenyl
Cyclopropanes With Substituents in the Para
Position of the Benzene Cycle

S/079/60/030/012/005/027
B001/B064

nitration of phenyl cyclopropane, with subsequent reduction of the nitro group to the amino group (Ref. 1), served as the initial product. The replacement of the latter in p-amino phenyl cyclopropane by other substituents was carried out by diazotization. Thus, p-hydroxy-p-chloro- and p-bromophenyl cyclopropane results:

$$p\text{-H}_2\text{N-C}_6\text{H}_4\text{-CH(CH}_2\text{)-CH}_2 \longrightarrow p\text{-X-C}_6\text{H}_4\text{-CH(CH}_2\text{)-CH}_2 \quad (\text{X} = \text{OH, Cl, Br}).$$
 p-amino-phenyl cyclopropane was also used for synthesizing p-dimethyl amino phenyl cyclopropane:



A study of the Raman spectra of the phenyl cyclopropanes obtained showed that no unsaturated compounds had been added; intensive frequencies appeared at 1600 cm^{-1} , which are characteristic of the aromatic cycle, as well as bands ($1200\text{-}1260\text{ cm}^{-1}$) indicating the presence of the phenyl cyclopropane molecule (Refs. 5, 6). The ultraviolet absorption curves of aryl cyclopropanes (Diagrams 1 and 2) showed the same character as those of p-tolyl
Card 2/3

SHABAROV, Yu.S.; VASIL'YEV, N.I.; MAMAYEVA, N.K.; LEVINA, R.Ya.

New method of synthesizing 3-aryl-1,4,5,6-tetrahydropyridazines.

β -Diphenylcyclobutane. Dokl. AN SSSR 135 no.4:879-882 '60.

(MIRA 13:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.

Predstavleno akademikom A.N.Nesmeyanovym.

(Cyclobutane)

SHUSHERINA, N.P.; DMITRIYEVA, N.D.; LEVINA, R.Ya.

δ -Lactones and δ -lactams. Dokl. AN SSSR 135 no.6:1406-1408 D '60.
(MIRA 13:12)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
Predstavleno akademikom A.N. Nesmeyanovym.
(Lactones) (Lactam)

S/051/61/010/001/005/017
E201/E491

AUTHORS: Treshchova, Ye.G., Tatevskiy, V.M., Daukshas, V.K.
and Levina, R.Ya.

TITLE: The Raman Spectra of Various Types of Hydrocarbons VII.
Ditertiaryalkylmethanes C₁₀ - C₁₇ - Branched Alkanes
With Two Quaternary Carbon Atoms Separated by a
Methylene Group

PERIODICAL: Optika i spektroskopiya, 1961, Vol.10, No.1, pp.63-68

TEXT: Continuing earlier work (Ref.1 to 3) on vibrational spectra of higher alkanes, the authors studied the following C₁₀ - C₁₇ hydrocarbons containing quaternary and tertiary carbon atoms (ditertiaryalkylmethanes): 3,3,5,5-tetramethylheptane, 4,4,6,6-tetramethylnonane, 5,5,7,7-tetramethylundecane, 2,2,4,4-tetramethylhexane, 2,2,4,4-tetramethylheptane, 2,4,4,6,6,8-hexamethylnonane and 2,5,5,7,7,10-hexamethylundecane. The methods of preparing these compounds were given in earlier work (Ref.4 to 6). Some physical and chemical properties of ditertiaryalkylmethanes are listed in Table 1. The Raman spectra were recorded with a three-prism spectrograph with a Card 1/2

S/051/61/010/001/005/017
E201/E491

The Raman Spectra of Various Types of Hydrocarbons VII.
Ditertiaryalkylmethanes C_{10} - C_{17} - Branched Alkanes With Two
Quaternary Carbon Atoms Separated by a Methylene Group

photomultiplier ЭВ-17 (FEU-17). The measurements and calculations were carried out in the same way as in earlier work (Ref.7). The intensity of the 802 cm^{-1} line of cyclohexane was used as a standard; its dependence on the monochromator exit slit is shown in Fig.2. Table 2 lists the frequencies and intensities of the Raman lines in the region 150 to 1600 cm^{-1} . It was found that the characteristics of quaternary carbon atoms and the group with a tertiary carbon atom at the end of the chain, established for lower hydrocarbons, applied also to paraffin hydrocarbons up to $C_{17}H_{36}$. The characteristics of complex branching with two quaternary carbon atoms, separated by CH_2 , were present irrespective of the length of the chain and the presence of simple branching. The presence of complexes with quaternary and tertiary carbons did not interfere with the characteristics of separate groups. There are 1 figure, 2 tables and 10 references: 9 Soviet and 1 non-Soviet.

SUBMITTED: December 21, 1959

Card 2/2

YUR'YEV, Yu.K.; LEVINA, R.Ya.

N.D.Zelinskii and the scientific trends in his students' schools;
on the one hundredth anniversary of his birth. Vest. Mosk. un.
Ser. 2: Khim. 16 no.1:3-10 Ja-F '61. (MIRA 14:4)
(Zelinskii, Nikolai Dmitrievich, 1861-1953)

LEVINA, R.Ya.; KOSTIN, V.N.; GEMBITSKIY, P.A.; VINOGRADOV, A.D.

Reactions of cyclopropane hydrocarbons with mercury oxide salts.
Part 12: γ -Mercurated alcohols from 1,1-dimethyl-2-alkylcyclo-
propanes. Vest. Mosk. un. Ser. 2:Khim. 16 no.1:67-68 Ja-F '61.
(MIRA 14:4)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
(Mercury organic compounds)

IQFFE, B.V.; DAUKSHAS, V.K. [Daukšas, V.]; LEVINA, R.Ya.

Relationship between the refractive dispersion of alkanes and their structure. Vest.Mosk.Un.Ser.2: khim. 16 no.6:67-72 N-D '61.
(MIRA 14:11)

1. Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo universiteta i kafedra organicheskoy khimii Leningradskogo gosudarstvennogo universiteta.

(Paraffins)

(Chemical structure)

(Dispersimetry)

LEVINA, R.Ya.; DAUKSHAS, V.K. [Dauksas, V.K.]

Synthesis of hydrocarbons. Part 76: Cyclohexanes with three
quaternary carbon atoms in the ring. Zhur.ob.khim. 30 no.10:
3207-3210 0 '61. (MIRA 14:4)

1. Moskovskiy gosudarstvennyy universitet.
(Cyclohexane)

SHABAROV, Yu.S.; LEVINA, R.Ya.; KUZ'MIN, M.G.; VASIL'YEV, N.I.; DAMIR, N.A.

Cyclopropanes and cyclobutanes. Part 11: Methylphenylcyclobutanes.
Zhur.ob.khim. 30 no.10:3210-3214 0 '61. (MIRA 14:4)

1. Moskovskiy gosudarstvennyy universitet.
(Cyclobutane)

LEVINA, R.Ya.; KOSTIN, V.N.; GEMBITSKIY, P.A.; SHOSTAKOVSKIY, S.M.

New hydrocarbons of the cyclopropane series. Zhur.ob.khim. 30
no.10:3502-3503 0 '61. (MIRA 14:4)

1. Moskovskiy gosudarstvennyy universitet.
(Cyclopropane)

SKVARCHENKO, V.R.; TSYBIKOVA, D.TS.; LEVINA, R.Ya.

New method of synthesizing β -terphenyls. Zhur.ob.khim. 30 no.10:
3504-3505 0 '61. (MIRA 14:4)

1. Moskovskiy gosudarstvennyy universitet.
(Terphenyl)

SHABAROV, Yu.S.; LEVINA, R.Ya.; VISIL'YEV, N.I.; VASILENKO, N.A.

Cyclopropanes and cyclobutanes. Part 16: ρ -chloro- and
 ρ -bromophenylcyclobutanes. Zhur. ob. khim. 31 no. 2:378-382
F '61. (MIRA 14:2)

1. Moskovskiy gosudarstvennyy universitet.
(Cyclopropane) (Cyclobutane)

SKVARCHENKO, V.R.; LIN VEYEN-LYAN' [Lin Veen-lian']; LEVINA, R.Ya.

Aromatic hydrocarbons. Part 17: Synthesis of phenanthrenes.
Zhur. ob. khim. 31 no. 2:383-387 F '61. (MIRA 14:2)

1. Moskovskiy gosudarstvennyy universitet.
(Phenanthrene)

LEVINA, R. Ya.; KOSTIN, V.N.; GEMBITSKIY, P.A.; TRESHCHOVA, Ye. G.

Cyclopropanes and cyclobutanes. Part 17: Reduction of arylcyclopropanes by metals and methyl alcohol in liquid ammonia.
Zhur. ob. khim. 31 no.3/829-836 Nr '61. (MIRA 14:3)

1. Moskvskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Cyclopropane)

SHUSHERINA, N.P.; TRUBNIKOV, I.S.; LEVINA, R. Ya.

δ -Lactones and δ -lactams. Part 24: Reduction of δ -enol lactones by lithium aluminum hydride. Preparation of Δ^2 -dihydropyrans. Zhur. ob. khim. 31 no.4:1076-1079 Ap '61.
(MIRA 14:4)

1. Moskovskiy gosudarstvennyy universitet.
(Lactones) (Aluminum lithium hydride) (Pyran)

LEVINA, R. Ya.; KOSTIN, V.N.; GEMBIISKIY, P.A.; SHOSTAKOVSKIY, S.M.;
TRESHCHOVA, Ye.G.

Cyclopropanes and cyclobutanes. Part 18: *p*-Cyclopropylcumene
and *p*-isopropenylcumene. Zhur. ob. khim. 31 no.4:1185-1190
Ap '61. (MIRA 14:4)

1. Moskovskiy gosudarstvennyy universitet.
(Benzene)

SHABAROV, Yu.S.; VASIL'YEV, N.I.; LEVINA, R.Ya.

Cyclopropanes and cyclobutanes. Part 19: Certain reactions of
phenylcyclobutane. Zhur.ob.khim. 31 no.6:1812-1816 Je '61.
(MIRA 14;6)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Benzene)

VIG, O.P.; LEVINA, R.Ya.

New synthesis of 2-arylcyclohexen-2-ones. Zhur.ob.khim. 31 no.6:
1817-1818 Je '61. (MIRA 14:6)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Cyclohexenone)

22202

3/019/61/031/006/002/005
D223/D305

53600

AUTHORS: Skvarchenko, V.R., Tsybikova D.Ts. and Levina R.Ya.

TITLE: Aromatic hydrocarbons, XIX. 2-phenylfluorene

PERIODICAL: Zhurnal obshchey khimii, v. 31, no.6, 1961, 1819-1822

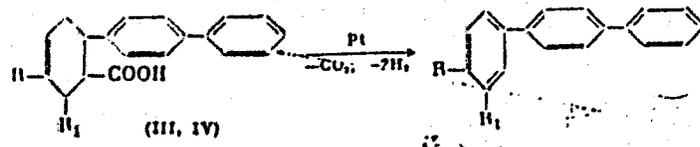
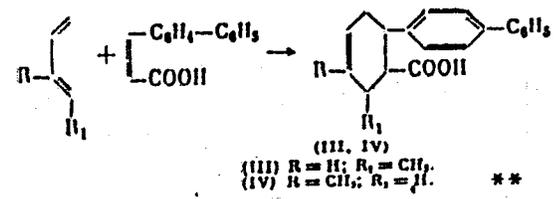
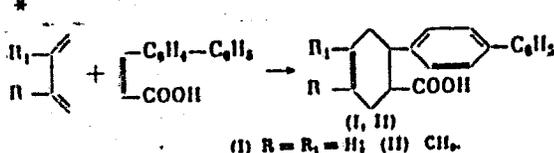
TEXT: In the present work a description is given of the method of producing hydrocarbons of 2 phenylfluorene series: this method uses as an initial dienophyl n-phenylcinnamic (n-diphenylacrylic) acid. The authors state that they achieved bonding of n-phenylcinnamic acid (n-phenyl cinnamic acid can be obtained (yield 92%) by condensation of malonic acid with n-phenylbenzaldehyde in the presence of glacial acetic acid) with divinyl, 2.3-dimethylbutadiene- 1.3, piperyl, and isoprene by heating for 18 hours in an autoclave the benzene solutions of reacting substance (in the presence of traces of picric acid and hydroquinone)*. The bond structure (III) (as "ortho-bond") and (IV) (as "metabond") obtained from diens and dienophyls of asymmetrical structures, has been confirmed by their transformation into corresponding 3-methyl and

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Aromatic hydrocarbons, XIX. 2-phenylfluorene



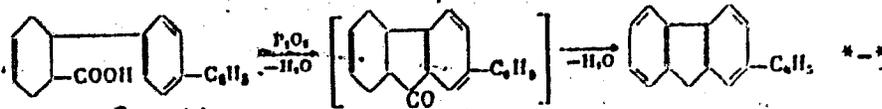
4-methyl-n-terphenyl (by decarboxylation and subsequent dehydration in the presence of platinum) as indicated **. Bonds(I-IV) representing 2-n-diphenyl-1,2,3,6-tetra-hydrobenzoic acid and their close homologues with one or two methyl groups, were changed by heating with phosphoric pentoxide into corresponding 2-phenyl-fluorenes (yield 43-51%). The reaction proceeds through the stage of intermolecular acylation, transfer of double bond and dehydration *-*. In this way from 2-n-diphenyl - 1,2,3,6 - tetrahydrobenzoic acid (I)

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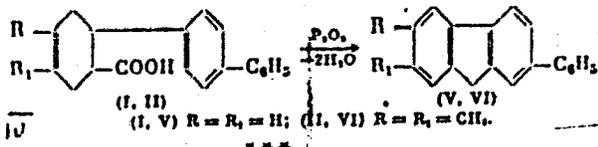
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D223/D305

Aromatic hydrocarbons, XIX. 2-phenylfluorene



and 4,5-dimethyl - 2 - n - diphenyl - 1,2,3,6 - tetrahydrobenzoic acid (II) - bonding n-phenylcinnamic acid with divinyl and 2,3-dimethylbutadiene - 1, 3 -, were obtained 8-methyl-2-phenyl fluorene (V) and 6,7-dimethyl-2-phenylfluorene (VI) ***. Similarly from 6-



methyl - 2-n-diphenyl-1,2,3,6-tetrahydrobenzoic acid (III) and 5-methyl-2-n-diphenyl-1,2,3,6-tetrahydrobenzoic acid (IV) (bonding-n-phenylcinnamid acid with piperyl and isopren) the authors obtained 8-methyl-

2-phenylfluorene (VII) and corresponding 7-methyl-2-phenylfluorene (VIII)

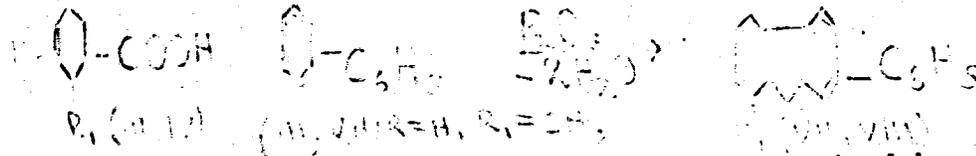
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X

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Aromatic hydrocarbons, XIX. 2-phenylfluorene



The synthesis of 2-phenylfluorene was characterized by absorption of UV-spectrums. The spectrum of 2-phenylfluorene is similar to that of 1-phenylfluorene (Ref 3: L.M.W. Anderson, N.Campbell, D. Leaver, W.H. Stafford, J.Chem. Soc., 1952, 3992) and 9-phenylfluorene differs from the spectrum of fluorene itself. The method of preparing n-phenylbenzaldehyde is explained. Once obtained, it was mixed with 40% sodium bisulphate solution and after leaving for a day filtered off, shaken with ether, and heated for 6-8 hours with the addition of 2N soda solution. The purified n-phenylbenzaldehyde was extracted with ether, dried with magnesium sulphate, filtered off and after removing the ether the aldehyde obtained melted at 57-58°C. n-Phenylbenzaldehyde was then added to an equimolecular

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Aromatic hydrocarbons, XIX. 2-phenylfluorene

quantity of malonic acid in glacial acetic acid and heated on a water bath until carbon dioxide was evolved. After removing the acetic acid obtained, n-phenylcinnamic acid (yield 92%) was re-crystallized and gave m.pt. 223-224° which agrees with literature values (Ref 5: D. Hey, J.Chem.Soc. 1931, 2476). Equimolecular quantities of bonds (I-IV) and phosphorus pentoxide were heated for 1 hour at 330-350°C on a hot plate and produced hydrocarbon; distilled in vacuo (gradually decreasing pressure to 8-10 mm), purified by vacuum treatment and recrystallization. In this way the following were obtained: a) 2-phenyl fluorene (v) from divinyl bond; yield 43%, m.pt. 191-192° (from alcohol); b) 6.7-dimethyl-2-phenylfluorene (VI) from 2.3-dimethylbutadiene 1.3 bond; yield 51%, m. pt. 216-217° (from acetic acid and then alcohol); c) 8-methyl-2-phenyl fluorene (VII) from piperyl bond; yield 45% m.pt. 121-123° (from alcohol); d) 7-methyl-2-phenylfluorene (VIII) from isoprene bond; yield 45%, m.pt. 186-187°C (from absolute alcohol); 7-methyl-2-phenylfluorene was obtained by the oxidation of 7-methyl-2-phenylfluorene (VIII)

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S/079/61/031/006/002/005
D223/D305

Aromatic hydrocarbons, XIX. 2-phenylfluorene

(0.3 gm) with potassium dichromate (0.8 grms) in acetic acid (16 mls of glacial acetic acid and 2 mls of water) and boiling for 1.5 hours; the reacted mass was poured into cold water, the residue filtered and extracted with ethyl alcohol. The alcohol extract was steam distilled and ketone obtained, recrystallized from a mixture of benzene and petroleum ether, dried in vacuo (at 2 mm) and once more recrystallized. M.pt. 118-121°C. There are 7 references: 2 Soviet-bloc and 5 non-Soviet-bloc. The references to the English-language publications read as follows: D.M.W. Anderson, N. Campbell, D. Leaver, W.H. Stafford, J. Chem. Soc. 1959, 3992; C.K. Bradsher, L.J. Wisson, J.Chem.Soc. 68, 2149 (1946); H. Gilman, E.A. Weipert J. Org. Ch., 22, 446 (1957).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova (Moscow State University im M.V. Lomonosov)

SUBMITTED: June 27, 1960

Card 6/6

LEVINA, R.Ya.; SHANAZAROV, K.S.; KOSTIN, V.N.

Synthesis of hydrocarbons. Part 77: Stereoisomeric 1, 3, 5-trialkyl-[0, 1, 3]^{1, 3}-bicyclohexanes. Zhur.ob.khim. 31 no.6: 1823-1827 Je '61. (MIRA 14:6)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Bicyclohexane)

PENTIN, Yu.A.; TRUBNIKOV, I.S.; SHUSHERINA, N.P.; LEVINA, R.Ya.

Study of the structure of δ -keto acids by infrared spectroscopy.
Zhur.ob.khim. 31 no.7:2092-2096 J1 '61. (MIRA 14:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Acids, Organic--Spectra)

SHABAROV, Yu.S.; VASIL'YEV, N.I.; LEVINA, R.Ya.

Synthesis and catalytic decomposition of 3,4-dihydrophthalazines.
Zhur.ob.khim. 31 no.8:2478-2482 Ag '61. (MIRA 14:8)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.
Lomonosova.
(Phthalazine)

SHUSHERINA, N.P.; DMITRIYEVA, N.D.; LEVINA, R. Ya.

Chloromethylation of 2-pyrones. Zhur.ob.khim. 31 no.8:2794
Ag '61. (MIRA 14:8)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.
Lomonosova.
(Pyranone)

SKVARCHENKO, V.R.; LIN VEYEN-LYAN; LEVINA, R.Ya.

Aromatic hydrocarbons. Part 20: Chrysenes. Zhur.ob.khim. 31
no.9:2828-2831 S '61. (MIRA 14:9)

1. Moskovskiy gosudarstvennyy univertitet imeni M.V.Lomonosova.
(Chrysene)

LEVINA, R.Ya.; YUR'YEV, Yu.K.

N.D. Zelinskii and the development of his scientific endeavors; on the 100th anniversary of his birth. Zhur. prikl. khim. 34 no.1:3-9 Ja '61. (MIRA 14:1)

1. Moskovskiy gosudarstvennyy universitet.
(Zelinskii, Nikolai Dmitrievich, 1861-1953)

PENTIN, Yu.A.; TRUBNIKOV, I.S.; TEPLINAKAYA, R.B.; SHUSHERINA, N.P.
LEVINA, R.Ya.

Structure of δ -keto acids. Dokl. AN SSSR 139 no.5:1121-1123
Ag. '61. (MIRA 14:8)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
Predstavleno akademikom A.N.Nesmeyanovym.
(Acids, Organic)

SHUSHERINA, N.P.; LEVINA, R.Ya.; KUAN KHUA-MIN' [Hua-min]

New synthesis of 5, 6-disubstituted pyridines. Zhur.ob.khim.
31 no.10:3477-3478 0 '61. (MIRA 14:10)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Pyridine)

LEVINA, R.Ya.; GEMBITSKIY, P.A.

Bromination and acylation of phenylcyclopropane. Zhur.ob.khim.
31 no.10:3480-3481 0 '61. (MIRA 14:10)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Benzene) (Bromination) (Acylation)

TSYBIKOVA, D.TS., kand. khim. nauk; SKVARCHENKO, V.R., kand. khim. nauk;
LEVINA, R.Ya., doktor khim. nauk

Aromatization of diene adducts; *p*-terphenyls. Trudy VSTI no.1:
67-73 '62. (MIRA 17:11)

36283

S/190/62/004/004/019
B119/B138

5.3200
11.8600

AUTHORS:

Shchetinin, A. A., Topchiyeva, I. N., Shatarov, Yu. S.,
Levina, R. Ya.

TITLE:

Cyclopropanes and cyclobutanes. XXIII. Polymerization of
aryl cyclopropanes at high pressures and temperatures

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 4, 1962, 499-502

TEXT: The effect of high pressures (500-7500 atm) on phenyl-,
p-aminophenyl-, p-dimethyl aminophenyl-, p-chlorophenyl, p-hydroxyphenyl-,
p-methoxyphenyl cyclopropane, and p-methoxyphenyl cyclobutane between
100 and 200°C was investigated. Of these only p-hydroxy- and
p-methoxyphenyl cyclopropane undergo polymerization. The latter gives a
viscous oil at 500 atm and 200°C, a solid polymer at 7500 atm and 200°C.
With hydroquinone as inhibitor only a viscous liquid is formed at 7500 atm.
Therefore, polymerization takes place by the free-radical mechanism.
Only cyclopropane rings participate in the polymerization. The end
product of the thermal decomposition and the subsequent oxidation of the
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○
Cyclopropane and cyclobutanes. ...

S/190/62/004/004/019
B119/B138

polymer is anisic acid. There is 1 table.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: March 6, 1961

Card 2/2

X

S/189/62/000/005/006/006
D204/D307

AUTHORS: Treshchova, Ye. G., Skvarchenko, V. R., and
Levina, R. Ya.

TITLE: Raman spectra of various classes of hydro-
carbons. Communication VIII. The spectra of
polyalkylbenzenes

PERIODICAL: Moscow. Universitet. Vestnik. Seriya II,
Khimiya, no. 5, 1962, 66-70

TEXT: The spectra of (a) 1,2-dimethyl-4-ethyl, (b) 1,2-
dimethyl-4-butyl, (c) 1,4-dimethyl-2,3-diethyl, (d) 1,2,5-
trimethyl-3,4-diethyl, and (e) 1,2,3,4-tetramethyl-5,6-diethyl
benzenes were studied in the region of 150 - 1700 cm^{-1} , using a
triprismatic glass MCП-51 (ISP-51) spectrograph and a ФЭУ-17
(FEU-17) photomultiplier by a method described earlier. All
compounds showed lines in the regions of 224 - 257, 547 - 556,

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Raman spectra of...

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D204/D307

1048 - 1062, 1240 - 1290, 1320 - 1325, 1364 - 1380, 1570 - 1577, and 1605 - 1622 cm^{-1} , independently of the nature and position of the substituent. Compounds (a) and (b) showed very intense lines at 745 cm^{-1} ; in (c) this line was at 735 cm^{-1} ; in (d) at 672 cm^{-1} ; in (e) it was absent. The intensity of this line decreased with increasing degree of substitution. These frequencies are ascribed to the out-of-plane deformation vibrations of the aromatic C-H bonds. The characteristic lines and their vibrations were found to be practically independent of the position and chain-length of the alkyl group. The help of R. P. Shibayeva and N. K. Karpenko in the preparation of alkylated benzenes is acknowledged. There are 2 tables. ✓

ASSOCIATION: Kafedra organicheskoy khimii (Department of
 Organic Chemistry)

SUBMITTED: January 11, 1961

Card 2/2

GEMBITSKIY, P. A.; LEVINA, R. Ya.

Unsaturation of ~~cyclopropylene~~ ethylene ring and its conjugation with multiple bonds. Vest. Mosk. un. Ser. 2: Khim. 16 [i.e. 17], no. 6:3-31 M-D '62. (MIRA 16:1)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

(Cyclopropane) (Chemical structure)
(Unsaturated compounds)

SHUSHERINA, M.P.; LEVINA, R.Ya.; RYMAREVA, T.G.

δ -Lactones and δ -lactams. Part 27: Reaction of 5-bromo-1,6-dehydroxy-2-piperidones with ammonia and amines. Zhur. ob. khim. 32 no.1:89-92 Ja '62. (MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Piperidone) (Ammonia) (Amines)

SKVARCHENKO, V.R.; TSYBIKOVA, D.TS.; LEVINA, R.Ya.

Aromatic hydrocarbons. Part 21: Polynuclear hydrocarbons including
2-phenylfluorene and p-terphenyl systems. Zhur. ob. khim. 32 no.1:
108-111 Ja '62. (MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Hydrocarbons)

SKVARCHENKO, V.R.; LEVINA, R.Ya.; SHIBAYEVA, R.P.

Aromatic hydrocarbons. Part 22: Dimethylalkylbenzenes. Fumaric acids in diene synthesis. Zhur. ob. khim. 32 no.1:111-113 Ja '62. (MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Benzene) (Fumaric acid) (Butadiene)

SHUSHERINA, N.P.; DMITRIYEVA, N.D.; LEVINA, R.Ya.

δ -Lactones and δ -lactams. Part 28: Dehydrobromination of
dibromides of isomeric benzotetrahydrocoumarins. Zhur. ob. khim.
32 no.1:213-216 Ja '62. (MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet.
(Coumarin) (Hydrobromic acid)

SKVARCHENKO, V.R.; LIN VEYEN-LYAN'; SEDYKH, N.V.; LEVINA, R.Ya.

Aromatic hydrocarbons. Part 23: Biphenyls. Zhur. ob. khim. 32 no.1:
217-222 Ja '62. (MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet.
(Biphenyl)

SKVARCHENKO, V.R.; LIN VEYEN-LYAN'; LEVINA, R.Ya.

Aromatic hydrocarbons. Part 24: Polynuclear hydrocarbons including the system of indan 1-(cyclopentenyl-1')-cyclohexene in diene synthesis. Zhur.ob.khim. 32 no.4:1023-1025 Ap '62. (MIRA 15:4)

1. Moskovskiy gosudarstvennyy universitet.
(Cyclohexene)

LEVINA, R.Ya.; KOSTIN, V.N.; GEMBITSKIY, P.A.; SHOSTAKOVSKIY, S.M.;
TRESHCHOVA, Ye.G.

Cyclopropanes and cyclobutanes. Part 24: Cyclopropylmesitylene.
Zhur.ob.khim. 32 no.5:1377-1382 My '62. (MIRA 15:5)

1. Moskovskiy gosudarstvennyy universitet.
(Mesitylene)